

STN Search

10/731,525

FILE 'HOME' ENTERED AT 15:57:43 ON 17 APR 2006

=> file .nash

=> s adenosine (5w) phosphosulfate reductase or aps reductase

L1 87 FILE MEDLINE
L2 178 FILE CAPLUS
L3 120 FILE SCISEARCH
L4 55 FILE LIFESCI
L5 132 FILE BIOSIS
L6 63 FILE EMBASE

TOTAL FOR ALL FILES

L7 635 ADENOSINE (5W) PHOSPHOSULFATE REDUCTASE OR APS REDUCTASE

=> s 17 and soybean

TOTAL FOR ALL FILES

L14 6 L7 AND SOYBEAN

=> dup rem l14

PROCESSING COMPLETED FOR L14

L15 3 DUP REM L14 (3 DUPLICATES REMOVED)

=> d ibib abs 1-3

L15 ANSWER 1 OF 3 SCISEARCH COPYRIGHT (c) 2006 The Thomson Corporation on
STN

ACCESSION NUMBER: 2004:1028120 SCISEARCH Full-text

THE GENUINE ARTICLE: 871HS

TITLE: Intrinsic sulfite content of isolated soy proteins

AUTHOR: Stine C J; Boatright W L (Reprint); Lu G

CORPORATE SOURCE: Univ Kentucky, Dept Anim Sci, 412 WP Garrigus Bldg,
Lexington, KY 40546 USA (Reprint); Univ Kentucky, Dept
Anim Sci, Lexington, KY 40546 USA
wlboat1@uky.edu

COUNTRY OF AUTHOR: USA

SOURCE: JOURNAL OF THE AMERICAN OIL CHEMISTS SOCIETY, (SEP 2004)
Vol. 81, No. 9, pp. 829-833.
ISSN: 0003-021X.

PUBLISHER: AMER OIL CHEMISTS SOC A O C S PRESS, 221 W BRADLEY AVE,
CHAMPAIGN, IL 61821-1827 USA.

DOCUMENT TYPE: Article; Journal

LANGUAGE: English

REFERENCE COUNT: 24

ENTRY DATE: Entered STN: 16 Dec 2004

Last Updated on STN: 16 Dec 2004

ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

AB Commercial isolated soy proteins (ISP) contain 22 and 31 ppm sulfite as measured by the optimized Monier Williams method (Sulfites in Foods, Official Methods of Analysis, 16th edn., AOAC, Washington, DC, 1995, Official Method 990.28). A method was developed to cryogenically trap and quantify the sulfur dioxide produced by this method using GC-MS. The same commercial ISP samples were found to contain 17 and 26 ppm sulfite, respectively, with GC-MS. ISP prepared in the laboratory contained 33 ppm sulfur dioxide, and defatted soybean flakes contained only a trace. Adding dithiothreitol after beginning the boiling step of the Monier-Williams assay had no significant effect on the sulfite content of a commercial ISP, whereas adding dithiothreitol prior to bringing the sample to a boil reduced the sulfite content from 17 to about 1 ppm.

L15 ANSWER 2 OF 3 MEDLINE on STN DUPLICATE 1

ACCESSION NUMBER: 2003029319 MEDLINE Full-text

DOCUMENT NUMBER: PubMed ID: 12514246

TITLE: Regulation of sulfur-responsive gene expression by
exogenously applied cytokinins in Arabidopsis thaliana.

AUTHOR: Ohkama Naoko; Takei Kentaro; Sakakibara Hitoshi; Hayashi
Hiroaki; Yoneyama Tadakatsu; Fujiwara Toru

CORPORATE SOURCE: Department of Applied Biological Chemistry, Graduate School
of Agricultural and Life Sciences, The University of Tokyo,
Tokyo, 113-8657 Japan.. aa07023@mail.ecc.u-tokyo.ac.jp

SOURCE: Plant & cell physiology, (2002 Dec) Vol. 43, No. 12, pp.

1493-501.
 Journal code: 9430925. ISSN: 0032-0781.
 PUB. COUNTRY: Japan
 DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 200305
 ENTRY DATE: Entered STN: 20030123
 Last Updated on STN: 20030521
 Entered Medline: 20030520

AB Effects of plant hormones on a sulfur-deficiency responsive element (betaSR) from the promoter region of the beta subunit gene of beta-conglycinin, a major seed storage protein of soybean, were investigated using transgenic Arabidopsis thaliana. Among the hormones tested, the cytokinins, trans-zeatin (Z) and trans-zeatin riboside, upregulated gene expression directed by the betaSR element both in the presence and in the absence of sulfate in the medium. Z also increased transcript accumulation of two endogenous sulfur-responsive genes, the adenosine 5'-phosphosulfate reductase (APR1) and the Sultr2;2, a sulfate transporter. Concentrations of cytokinins were unaltered during early stages of sulfur starvation when expression of these genes was upregulated. Z did not alter concentrations of O-acetyl-L-serine, a positive regulator of gene expression in sulfur starvation response. Concentrations of sucrose, which is known to upregulate expression of APR1, were increased in rosette leaves by Z. Sucrose application to the medium also increased expression directed by the betaSR element, although sucrose concentrations in tissues were not significantly altered by sulfur availability. These results suggest that exogenously applied cytokinins positively regulate expression of these sulfur responsive genes through a pathway independent of that from sulfur starvation, possibly through increasing sucrose concentrations in tissues.

L15 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:592849 CAPLUS Full-text

DOCUMENT NUMBER: 133:173028

TITLE: Modulating the levels of organic sulfur compounds in plants by transformation with DNA constructs encoding enzymes involved in sulfur metabolism

INVENTOR(S): Leustek, Thomas; Tarczynski, Mitchell C.

PATENT ASSIGNEE(S): Rutgers University, USA; Pioneer Hi-Bred International, Inc.

SOURCE: PCT Int. Appl., 26 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000049165	A1	20000824	WO 2000-US4381	20000218
W:	AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW			
RW:	GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
US 6576819	B1	20030610	US 1999-252319	19990218
EP 1153135	A1	20011114	EP 2000-915814	20000218
EP 1153135	B1	20051116		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
AT 310095	E	20051215	AT 2000-915814	20000218
PRIORITY APPLN. INFO.:			US 1999-252319	A 19990218
			WO 2000-US4381	W 20000218

AB Methods for modulating levels of at least one organic sulfur compound in plants are provided. Also provided are plants, plant seeds, and plant cells produced by the methods. The methods comprise stably transforming a plant with a DNA construct encoding a (3'-phosphoadenosine)5'-adenylylsulfate reductase enzyme capable of altering the level of at least one organic sulfur compound. Also provided are methods for reducing oxidative stress in plants and for increasing the nutritional quality of plants and seeds.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> s 17 and glycine max

L16 1 FILE MEDLINE
L17 1 FILE CAPLUS
L18 0 FILE SCISEARCH
L19 0 FILE LIFESCI
L20 0 FILE BIOSIS
L21 0 FILE EMBASE

TOTAL FOR ALL FILES

L22 2 L7 AND GLYCINE MAX

=> dup rem l22

PROCESSING COMPLETED FOR L22

L23 2 DUP REM L22 (0 DUPLICATES REMOVED)

=> d ibib abs 1-2

L23 ANSWER 1 OF 2 MEDLINE on STN

ACCESSION NUMBER: 2003029319 MEDLINE Full-text

DOCUMENT NUMBER: PubMed ID: 12514246

TITLE: Regulation of sulfur-responsive gene expression by exogenously applied cytokinins in *Arabidopsis thaliana*.

AUTHOR: Ohkama Naoko; Takei Kentaro; Sakakibara Hitoshi; Hayashi Hiroaki; Yoneyama Tadakatsu; Fujiwara Toru

CORPORATE SOURCE: Department of Applied Biological Chemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo, Tokyo, 113-8657 Japan.. aa07023@mail.ecc.u-tokyo.ac.jp

SOURCE: Plant & cell physiology, (2002 Dec) Vol. 43, No. 12, pp. 1493-501.

Journal code: 9430925. ISSN: 0032-0781.

PUB. COUNTRY: Japan

DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)

LANGUAGE: English

FILE SEGMENT: Priority Journals

ENTRY MONTH: 200305

ENTRY DATE: Entered STN: 20030123

Last Updated on STN: 20030521

Entered Medline: 20030520

AB Effects of plant hormones on a sulfur-deficiency responsive element (betaSR) from the promoter region of the beta subunit gene of beta-conglycinin, a major seed storage protein of soybean, were investigated using transgenic *Arabidopsis thaliana*. Among the hormones tested, the cytokinins, trans-zeatin (Z) and trans-zeatin riboside, upregulated gene expression directed by the betaSR element both in the presence and in the absence of sulfate in the medium. Z also increased transcript accumulation of two endogenous sulfur-responsive genes, the adenosine 5'-phosphosulfate reductase (APR1) and the Sultr2;2, a sulfate transporter. Concentrations of cytokinins were unaltered during early stages of sulfur starvation when expression of these genes was upregulated. Z did not alter concentrations of O-acetyl-L-serine, a positive regulator of gene expression in sulfur starvation response. Concentrations of sucrose, which is known to upregulate expression of APR1, were increased in rosette leaves by Z. Sucrose application to the medium also increased expression directed by the betaSR element, although sucrose concentrations in tissues were not significantly altered by sulfur availability. These results suggest that exogenously applied cytokinins positively regulate expression of these sulfur responsive genes through a pathway independent of that from sulfur starvation, possibly through increasing sucrose concentrations in tissues.

L23 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 2000:592849 CAPLUS Full-text

DOCUMENT NUMBER: 133:173028

TITLE: Modulating the levels of organic sulfur compounds in plants by transformation with DNA constructs encoding enzymes involved in sulfur metabolism

INVENTOR(S): Leustek, Thomas; Tarczynski, Mitchell C.

PATENT ASSIGNEE(S): Rutgers University, USA; Pioneer Hi-Bred International, Inc.

SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000049165	A1	20000824	WO 2000-US4381	20000218
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6576819	B1	20030610	US 1999-252319	19990218
EP 1153135	A1	20011114	EP 2000-915814	20000218
EP 1153135	B1	20051116		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
AT 310095	E	20051215	AT 2000-915814	20000218
PRIORITY APPLN. INFO.: US 1999-252319 A 19990218 WO 2000-US4381 W 20000218				

AB Methods for modulating levels of at least one organic sulfur compound in plants are provided. Also provided are plants, plant seeds, and plant cells produced by the methods. The methods comprise stably transforming a plant with a DNA construct encoding a (3'-phosphoadenosine)5'-adenylylsulfate reductase enzyme capable of altering the level of at least one organic sulfur compound. Also provided are methods for reducing oxidative stress in plants and for increasing the nutritional quality of plants and seeds.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> log y

WEST Search History

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DATE: Monday, April 17, 2006

Hide?	Set Name	Query	Hit Count
		<i>DB=PGPB; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L4	L3 and soybean	9
<input type="checkbox"/>	L3	adenosine adj5 phosphosulfate reductase or APS reductase	15
		<i>DB=USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>	
<input type="checkbox"/>	L2	L1 and soybean	10
<input type="checkbox"/>	L1	adenosine adj5 phosphosulfate reductase or APS reductase	26

END OF SEARCH HISTORY

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Search Results - Record(s) 1 through 26 of 26 returned.

☐ 1. Document ID: US 6974896 B1

Using default format because multiple data bases are involved.

L1: Entry 1 of 26

File: USPT

Dec 13, 2005

US-PAT-NO: 6974896

DOCUMENT-IDENTIFIER: US 6974896 B1

TITLE: Trace element phytoremediation

DATE-ISSUED: December 13, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Terry; Norman	Berkeley	CA		
Pilon-Smits; Elizabeth	Fort Collins	CO		
de Souza; Mark	Berkeley	CA		

US-CL-CURRENT: [800/306](#); [435/193](#), [435/69.1](#), [800/278](#), [800/298](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw D
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☐ 2. Document ID: US 6974580 B2

L1: Entry 2 of 26

File: USPT

Dec 13, 2005

US-PAT-NO: 6974580

DOCUMENT-IDENTIFIER: US 6974580 B2

TITLE: Mycobacterial sulfation pathway proteins and methods of use thereof

DATE-ISSUED: December 13, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bertozzi; Carolyn R.	Berkeley	CA		
Williams; Spencer J.	Berkeley	CA		
Mougous; Joseph D.	El Cerrito	CA		

US-CL-CURRENT: [424/248.1](#); [424/130.1](#), [424/164.1](#), [424/168.1](#), [424/180.1](#), [424/200.1](#),
[424/234.1](#), [424/9.1](#), [424/9.2](#), [435/15](#), [435/183](#), [435/29](#), [435/4](#), [435/440](#), [435/471](#),
[435/7.1](#), [435/7.4](#)

ABSTRACT:

Novel mycobacterial sulfation pathway proteins and polypeptides related thereto, as well as nucleic acid compositions encoding the same, are provided. The subject polypeptide and nucleic acid compositions find use in a variety of applications, including research, diagnostic, and therapeutic agent screening applications. Also provided are methods of inhibiting growth and/or virulence of a pathogenic mycobacterium, and methods of treating disease conditions associated with a pathogenic mycobacterium, particularly by administering an inhibitor of a mycobacterial sulfation pathway protein. The present invention further provides genetically modified mycobacteria having a defect in a sulfation pathway enzyme gene; and immunogenic compositions that include such genetically modified mycobacteria.

13 Claims, 28 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 27

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 3. Document ID: US 6939710 B2

L1: Entry 3 of 26

File: USPT

Sep 6, 2005

US-PAT-NO: 6939710

DOCUMENT-IDENTIFIER: US 6939710 B2

TITLE: Genes encoding sulfate assimilation proteins

DATE-ISSUED: September 6, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Falco; Saverio Carl	Arden	DE		
Allen; Stephen M.	Wilmington	DE		

US-CL-CURRENT: 435/325; 435/189, 435/252.3, 435/320.1, 435/419, 435/440, 435/468, 536/23.2, 800/295

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the sulfate assimilation protein in a transformed host cell.

8 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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☐ 4. Document ID: US 6863895 B2

L1: Entry 4 of 26

File: USPT

Mar 8, 2005

US-PAT-NO: 6863895

DOCUMENT-IDENTIFIER: US 6863895 B2

TITLE: Mycobacterial sulfation pathway proteins and methods of use thereof

DATE-ISSUED: March 8, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bertozzi; Carolyn R.	Berkeley	CA		
Williams; Spencer J.	Berkeley	CA		
Mougous; Joseph D.	El Cerrito	CA		

US-CL-CURRENT: 424/248.1, 424/130.1, 424/164.1, 424/168.1, 424/184.1, 424/200.1,
424/234.1, 435/15, 435/183, 435/193, 435/29, 435/4, 435/440, 435/471, 435/7.1,
435/7.4

ABSTRACT:

Novel mycobacterial sulfation pathway proteins and polypeptides related thereto, as well as nucleic acid compositions encoding the same, are provided. The subject polypeptide and nucleic acid compositions find use in a variety of applications, including research, diagnostic, and therapeutic agent screening applications. Also provided are methods of inhibiting growth and/or virulence of a pathogenic mycobacterium, and methods of treating disease conditions associated with a pathogenic mycobacterium, particularly by administering an inhibitor of a mycobacterial sulfation pathway protein. The present invention further provides genetically modified mycobacteria having a defect in a sulfation pathway enzyme gene; and immunogenic compositions that include such genetically modified mycobacteria.

19 Claims, 28 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 27

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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☐ 5. Document ID: US 6858213 B2

L1: Entry 5 of 26

File: USPT

Feb 22, 2005

US-PAT-NO: 6858213

DOCUMENT-IDENTIFIER: US 6858213 B2

TITLE: Mycobacterial sulfation pathway proteins and methods of use thereof

DATE-ISSUED: February 22, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bertozzi; Carolyn R.	Berkeley	CA		
Williams; Spencer J.	Berkeley	CA		
Mougous; Joseph D.	El Cerrito	CA		

US-CL-CURRENT: 424/248.1; 424/130.1, 424/164.1, 424/168.1, 424/184.1, 424/200.1,
424/234.1, 435/15, 435/183, 435/193, 435/29, 435/4, 435/440, 435/471, 435/7.1,
435/7.4

ABSTRACT:

Novel mycobacterial sulfation pathway enzymes and polypeptides related thereto, as well as nucleic acid compositions encoding the same, are provided. The subject polypeptide and nucleic acid compositions find use in a variety of applications, including research, diagnostic, and therapeutic agent screening applications. Also provided are methods of inhibiting growth and/or virulence of a pathogenic mycobacterium, and methods of treating disease conditions associated with a pathogenic mycobacterium, particularly by administering an inhibitor of a mycobacterial sulfation pathway enzyme.

14 Claims, 27 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 26

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw D
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☐ 6. Document ID: US 6831206 B2

L1: Entry 6 of 26

File: USPT

Dec 14, 2004

US-PAT-NO: 6831206

DOCUMENT-IDENTIFIER: US 6831206 B2

TITLE: Serine O-acetyltransferase

DATE-ISSUED: December 14, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Allen; Stephen M.	Wilmington	DE	19810	
Falco; Saverio C.	Arden	DE	19810	
Tarczyński; Mitchell C.	West Des Moines	IA	50265	

US-CL-CURRENT: 800/295; 435/252.3, 435/320.1, 435/419, 435/468, 435/6, 435/69.1,
530/370, 536/23.6, 800/278

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a serine O-

acetyltransferase. The invention also relates to the construction of a recombinant DNA construct encoding all or a portion of the serine O-acetyltransferase, in sense or antisense orientation, wherein expression of the recombinant DNA construct results in production of altered levels of the serine O-acetyltransferase in a transformed host cell.

11 Claims, 2 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 7. Document ID: US 6821764 B2

L1: Entry 7 of 26

File: USPT

Nov 23, 2004

US-PAT-NO: 6821764
DOCUMENT-IDENTIFIER: US 6821764 B2

TITLE: Genes encoding sulfate assimilation proteins

DATE-ISSUED: November 23, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Allen; Stephen M.	Wilmington	DE		
Maxwell; Carl A.	Elkton	MD		
Falco; Saverio Carl	Arden	DE		

US-CL-CURRENT: 435/193; 435/252.3, 435/320.1, 435/471, 530/350, 536/23.2

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the sulfate assimilation protein in a transformed host cell.

7 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D.
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☐ 8. Document ID: US 6730827 B1

L1: Entry 8 of 26

File: USPT

May 4, 2004

US-PAT-NO: 6730827

DOCUMENT-IDENTIFIER: US 6730827 B1

**** See image for Certificate of Correction ****TITLE: Genes encoding plant adenosine 5'-phosphosulfate reductase

DATE-ISSUED: May 4, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Falco; Saverio Carl	Arden	DE		

US-CL-CURRENT: 800/295; 435/189, 435/252.33, 435/320.1, 435/410, 435/468

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the sulfate assimilation protein in a transformed host cell.

11 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 9. Document ID: US 6720172 B1

L1: Entry 9 of 26

File: USPT

Apr 13, 2004

US-PAT-NO: 6720172

DOCUMENT-IDENTIFIER: US 6720172 B1

TITLE: Genes encoding sulfate assimilation proteins

DATE-ISSUED: April 13, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Falco; Saverio Carl	Arden	DE		

US-CL-CURRENT: 435/189; 435/252.3, 435/320.1, 435/325, 435/419, 435/440, 435/468, 536/23.2

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein in sense or antisense orientation, wherein expression of the chimeric gene results in

production of altered levels of the sulfate assimilation protein in a transformed host cell.

11 Claims, 4 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 4

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 10. Document ID: US 6696292 B1

L1: Entry 10 of 26

File: USPT

Feb 24, 2004

US-PAT-NO: 6696292

DOCUMENT-IDENTIFIER: US 6696292 B1

**** See image for Certificate of Correction ****

TITLE: Genes encoding sulfate assimilation proteins

DATE-ISSUED: February 24, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Allen; Stephen M.	Wilmington			DE
Falco; Saverio Carl	Arden			DE
Thorpe; Catherine J.	Cambridge			GB

US-CL-CURRENT: 435/419, 435/183, 435/252.3, 435/320.1, 435/410, 435/6, 435/69.1,
530/370, 536/23.1, 536/23.2, 536/23.6, 536/24.1, 536/24.3, 536/24.33, 536/24.5,
800/278, 800/295

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the sulfate assimilation protein in a transformed host cell.

12 Claims, 13 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 13

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 11. Document ID: US 6576819 B1

L1: Entry 11 of 26

File: USPT

Jun 10, 2003

US-PAT-NO: 6576819

DOCUMENT-IDENTIFIER: US 6576819 B1

**** See image for Certificate of Correction ****TITLE: Methods for modulating the levels of organic sulfur compounds in plants by transforming with (P)APS reductase DNA

DATE-ISSUED: June 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Leustek; Thomas	Union	NJ		

US-CL-CURRENT: 800/320; 435/419, 800/278, 800/298

ABSTRACT:

Methods for modulating levels of at least one organic sulfur compound in plants are provided. Also provided are plants, plant seeds, and plant cells produced by the methods. The methods comprise stably transforming a plant with a DNA construct encoding at least one APS reductase enzyme or PAPS reductase enzyme (herein, "(P) APS reductase") so that the transformed plant exhibits altered levels of at least one organic sulfur compound. APS reductase is an enzyme classified as EC 1.8.4.9 and PAPS reductase is an enzyme classified as EC 1.8.99.4; these enzymes are capable of reducing sulfur in the form of APS or PAPS to produce sulfite. Also provided are methods for reducing oxidative stress in plants and for increasing the nutritional quality of plants and seeds.

22 Claims, 1 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 12. Document ID: US 6548280 B1

L1: Entry 12 of 26

File: USPT

Apr 15, 2003

US-PAT-NO: 6548280

DOCUMENT-IDENTIFIER: US 6548280 B1

**** See image for Certificate of Correction ****

TITLE: Genes encoding sulfate assimilation proteins

DATE-ISSUED: April 15, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Falco; Saverio Carl	Arden	DE		
Allen; Stephen M.	Wilmington	DE		
Maxwell; Carl A.	Elkton	MD		

US-CL-CURRENT: [435/193](#); [435/252.3](#), [435/320.1](#), [435/471](#), [530/350](#), [536/23.2](#)

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the sulfate assimilation protein in a transformed host cell.

6 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 13. Document ID: US 6531281 B1

L1: Entry 13 of 26

File: USPT

Mar 11, 2003

US-PAT-NO: 6531281

DOCUMENT-IDENTIFIER: US 6531281 B1

TITLE: Method of detecting sulphate-reducing bacteria

DATE-ISSUED: March 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Magot; Michel	Saint-Orens de Gameville			FR
Ravot; Gilles	Generac			FR

US-CL-CURRENT: [435/6](#); [435/91.2](#), [536/23.1](#), [536/23.2](#), [536/24.3](#), [536/24.32](#), [536/24.33](#)

ABSTRACT:

The present invention relates to a method for the detection of sulphate-reducing bacteria in a sample which is likely to contain them, the said method comprising the extraction of the DNA or of the RNA from the said sample and the detection of at least one fragment of the APS reductase gene or at least one fragment of the mRNA transcribed from the APS reductase gene, an indicator of the presence of sulphate-reducing bacteria in the said sample.

3 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 14. Document ID: US 6338966 B1

L1: Entry 14 of 26

File: USPT

Jan 15, 2002

US-PAT-NO: 6338966

DOCUMENT-IDENTIFIER: US 6338966 B1

**** See image for Certificate of Correction ****

TITLE: Genes encoding sulfate assimilation proteins

DATE-ISSUED: January 15, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Falco; Saverio Carl	Arden	DE		
Allen; Stephen M.	Wilmington	DE		
Anderson; Shawn L.	West Grove	PA		
Rafalski; J. Antoni	Wilmington	DE		

US-CL-CURRENT: 435/471; 435/194, 435/252.3, 435/320.1, 435/476, 435/6, 536/23.2

ABSTRACT:

This invention relates to an isolated nucleic acid fragment encoding a sulfate assimilation protein. The invention also relates to the construction of a chimeric gene encoding all or a portion of the sulfate assimilation protein, in sense or antisense orientation, wherein expression of the chimeric gene results in production of altered levels of the sulfate assimilation protein in a transformed host cell.

12 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. Des.
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☐ 15. Document ID: US 5705399 A

L1: Entry 15 of 26

File: USPT

Jan 6, 1998

US-PAT-NO: 5705399

DOCUMENT-IDENTIFIER: US 5705399 A

**** See image for Certificate of Correction ****

TITLE: Sensor and method for detecting predetermined chemical species in solution

DATE-ISSUED: January 6, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Larue; Rebecca A.	Levittown	PA		

US-CL-CURRENT: [436/501](#); [310/311](#), [310/312](#), [310/313A](#), [310/313R](#), [310/340](#), [310/361](#),
[310/365](#), [310/367](#), [310/369](#), [422/68.1](#), [422/82.01](#), [435/287.1](#), [435/287.2](#), [435/7.1](#),
[436/518](#), [436/524](#), [436/525](#), [436/527](#), [73/579](#), [73/580](#), [73/61.75](#), [73/64.53](#)

ABSTRACT:

A chemical sensor for measuring a change in the sensor mass relating to the interaction of a surface of the sensor with a solution comprises a crystal detector oscillator capable of providing a measurement signal based upon the resonant frequency of the crystal detector oscillator. The crystal detector oscillator has a first crystal side for directly contacting the solution, and a second crystal side isolated from contacting the solution. A first electrode is integral to the first crystal side, with the first electrode having an inner and outer perimeter defining an outer portion of the first crystal side which is exterior to the outer perimeter of the first electrode and an inner portion of the first crystal side which is interior to the inner perimeter of the first electrode. A second electrode is integral to the second crystal side. The sensor may be employed to detect the concentration of predetermined species in solution by adsorbing a predetermined species-specific complementary material such as an antibody onto the active crystal sites of the first crystal side, and thereafter contacting the first crystal side with the species-containing solution. The sensor may also be used to measure the change in sensor mass relating to the degradation of a coating applied to the first crystal side thereof.

56 Claims, 30 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 28

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. De
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☐ 16. Document ID: US 5369011 A

L1: Entry 16 of 26

File: USPT

Nov 29, 1994

US-PAT-NO: 5369011

DOCUMENT-IDENTIFIER: US 5369011 A

TITLE: Method and apparatus for collecting and detecting bacteria

DATE-ISSUED: November 29, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ebersole; Richard C.	Wilmington	DE		
Gelormini; Frank T.	Gibbstown	NJ		

US-CL-CURRENT: [435/7.32](#); [210/290](#), [210/667](#), [210/671](#), [210/691](#), [435/261](#), [435/29](#),
[435/30](#), [435/34](#), [435/39](#), [435/40](#), [435/7.2](#), [435/7.92](#), [435/9](#)

ABSTRACT:

This invention relates to a method for collecting, concentrating and detecting microorganisms from difficult-to-separate environmental samples e.g. oil well samples and the like, for the purpose of their analysis or identification; and

apparatus for performing the method.

7 Claims, 4 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw D
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☐ 17. Document ID: US 4999286 A

L1: Entry 17 of 26

File: USPT

Mar 12, 1991

US-PAT-NO: 4999286

DOCUMENT-IDENTIFIER: US 4999286 A

TITLE: Sulfate reducing bacteria determination and control

DATE-ISSUED: March 12, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gawel; Len J.	Ponca City	OK		
Ng; Thomas	Portola Valley	CA		
Odom; James M.	Wilmington	DE		
Ebersole; Richard C.	Wilmington	DE		

US-CL-CURRENT: 435/7.32; 435/25, 435/29, 435/34, 435/4, 435/7.4, 435/7.8, 435/9, 436/518, 436/531

ABSTRACT:

Sulfate reducing bacteria are detected by preparing a lysate so as to release an enzyme essential to derive energy by reduction of sulfate such as adenosine 5'-phosphosulfate reductase (APS reductase), containing the lysate with an antibody for the enzyme, and detecting the presence of the reaction product of the enzyme and the antibody. In one aspect, sulfate reducing bacteria are controlled responsive to such assay. In another aspect, a "test kit" is provided for carrying out the assay.

8 Claims, 11 Drawing figures

Exemplary Claim Number: 5

Number of Drawing Sheets: 6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw D
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☐ 18. Document ID: US 4999284 A

L1: Entry 18 of 26

File: USPT

Mar 12, 1991

US-PAT-NO: 4999284

DOCUMENT-IDENTIFIER: US 4999284 A

TITLE: Enzymatically amplified piezoelectric specific binding assay

DATE-ISSUED: March 12, 1991

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ward; Michael D.	Newark	DE		
Ebersole; Richard C.	Wilmington	DE		

US-CL-CURRENT: 435/4; 204/403.1, 205/778, 435/173.1, 435/21, 435/28, 435/6,
435/7.8, 435/7.92, 435/7.94, 435/817, 436/501, 436/531, 436/532, 436/537, 436/544,
436/547, 436/806

ABSTRACT:

A quartz crystal microbalance assay in which the binding of analyte to a surface on or near a quartz crystal microbalance (QCM) is detected by a conjugate which comprises an enzyme capable of catalyzing the conversion of a substrate to a product capable of accumulating on or reacting with a surface of the QCM leading to a mass change and, hence, a change in resonant frequency.

28 Claims, 8 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 8

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D
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☐ 19. Document ID: US 4200523 A

L1: Entry 19 of 26

File: USPT

Apr 29, 1980

US-PAT-NO: 4200523

DOCUMENT-IDENTIFIER: US 4200523 A

TITLE: Process for removing sulfate ions from aqueous streams

DATE-ISSUED: April 29, 1980

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Balmat; Jean L.	Kennett Square	PA		

US-CL-CURRENT: 210/611; 210/612, 210/631

ABSTRACT:

Sulfate ions contained in aqueous streams essentially free of organic carbon such as sulfuric acid streams are converted into more recoverable form by subjecting the stream to the action of sulfate-reducing bacteria in an inorganic, anaerobic system in the presence of an excess of calcium carbonate and converting the resultant

sulfide ions into an undissolved vapor or solid phase to facilitate recovery.

7 Claims, 1 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw D
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☐ 20. Document ID: WO 149855 A1

L1: Entry 20 of 26

File: EPAB

Jul 12, 2001

PUB-NO: WO000149855A1

DOCUMENT-IDENTIFIER: WO 149855 A1

TITLE: METHOD FOR OBTAINING PLANTS ENRICHED IN CYSTEINE AND GLUTATHIONE CONTENT

PUBN-DATE: July 12, 2001

INVENTOR-INFORMATION:

NAME

COUNTRY

BRUNOLD, CHRISTIAN

CH

PEREZ, PASCUAL

FR

INT-CL (IPC): C12 N 15/53; C12 N 15/82; C12 N 9/02; A01 H 5/00

EUR-CL (EPC): C12N009/02; C12N009/12, C12N015/82 , C12N015/82

ABSTRACT:

CHG DATE=20010904 STATUS=O>The invention concerns a method for obtaining a plant having an enriched content of cysteine and/or glutathione, comprising steps which consist in: transforming at least a plant cell with a vector containing an expression cassette including a sequence coding for an adenosine 5'-phosphosulphate reductase (APR); culturing the transformed cell so as to generate a plant containing in its genome said expression cassette.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw D
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☐ 21. Document ID: GB 2354072 A

L1: Entry 21 of 26

File: EPAB

Mar 14, 2001

PUB-NO: GB002354072A

DOCUMENT-IDENTIFIER: GB 2354072 A

TITLE: Detecting sulphate-reducing bacteria utilizing the APS reductase gene

PUBN-DATE: March 14, 2001

INVENTOR-INFORMATION:

NAME

COUNTRY

RAVOT, GILES
MAGOT, MICHEL

FR
FR

US-CL-CURRENT: 118/249
INT-CL (IPC): C12 Q 1/04; C12 Q 1/68
EUR-CL (EPC): C12Q001/68

ABSTRACT:

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 22. Document ID: EP 272916 A1

L1: Entry 22 of 26

File: EPAB

Jun 29, 1988

PUB-NO: EP000272916A1
DOCUMENT-IDENTIFIER: EP 272916 A1
TITLE: Sulfate-reducing bacteria determination and control.

PUBN-DATE: June 29, 1988

INVENTOR-INFORMATION:

NAME

COUNTRY

GAWEL, LEN J
ODOM, JAMES MARTIN
NG, THOMAS KALON

US-CL-CURRENT: 435/34; 435/287.2
INT-CL (IPC): C12 Q 1/04; G01 N 33/569; C12 Q 1/26; C12 M 1/34
EUR-CL (EPC): C12Q001/04; G01N033/573

ABSTRACT:

CHG DATE=19990617 STATUS=O> Sulfate-reducing bacteria are detected by preparing a lysate so as to release an enzyme essential to derive energy by reduction of sulfate such as adenosine 5'-phosphosulfate reductase (APS reductase), contacting the lysate with an antibody of the enzyme, and detecting the presence of the reaction product of the enzyme and the antibody. In one aspect, sulfate-reducing bacteria are controlled responsive to such assay. In another aspect, a "test kit" is provided for carrying out the assay.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 23. Document ID: US 20040123341 A1, WO 200149855 A1, FR 2803484 A1, AU 200131846 A, EP 1244792 A1, CZ 200202361 A3, HU 200203832 A2

L1: Entry 23 of 26

File: DWPI

Jun 24, 2004

DERWENT-ACC-NO: 2001-441884
DERWENT-WEEK: 200442
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TITLE: Novel nucleic acid, used to produce a transgenic plant enriched in cysteine and/or glutathione for producing animal feedstuff, codes for adenosine 5'-phosphosulfate reductase from Lemna minor

INVENTOR: BRUNOLD, C; PEREZ, P

PRIORITY-DATA: 2000FR-0000139 (January 6, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 20040123341 A1</u>	June 24, 2004		000	A01H001/00
<u>WO 200149855 A1</u>	July 12, 2001	F	046	C12N015/53
<u>FR 2803484 A1</u>	July 13, 2001		000	A01H005/00
<u>AU 200131846 A</u>	July 16, 2001		000	C12N015/53
<u>EP 1244792 A1</u>	October 2, 2002	F	000	C12N015/53
<u>CZ 200202361 A3</u>	November 13, 2002		000	C12N015/53
<u>HU 200203832 A2</u>	April 28, 2003		000	C12N015/53

INT-CL (IPC): A01 H 1/00; A01 H 5/00; A23 K 1/14; A23 L 1/00; C12 N 9/02; C12 N 15/29; C12 N 15/53; C12 N 15/63; C12 N 15/82

ABSTRACTED-PUB-NO: WO 200149855A
BASIC-ABSTRACT:

NOVELTY - Novel nucleic acid (na) (I) comprising a sequence (S1) of 1380 nucleotides (nt) coding for adenosine 5'-phosphosulfate reductase (APR) from Lemna minor, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) an expression cassette (II) comprising (I) operably linked to regulatory expression control sequences;
- (2) an expression vector (III) comprising (II);
- (3) a host cell (IV) transformed with (III);
- (4) obtaining (M1) a cysteine and/or glutathione-enriched plant, comprising:
 - (a) transforming at least one plant cell with a vector comprising an expression cassette comprising a sequence coding for an APR; and
 - (b) cultivating the transformed cell to generate a plant containing the expression cassette incorporated into its genome;
- (5) a plant or its part (V) produced by M1;
- (6) a transgenic hybrid plant (VI) produced by crossing at least one (V); and
- (7) products (VII), especially feed products, containing (V) or (VI).

USE - (I) is used to produce a transgenic plant enriched in cysteine and/or

glutathione (claimed). (V) and (VI) are used to prepare products such as animal feedstuff (claimed).

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMIC	Draw. D.
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☐ 24. Document ID: DE 60024060 E, WO 200049165 A1, AU 200037027 A, EP 1153135 A1, US 6576819 B1, EP 1153135 B1

L1: Entry 24 of 26

File: DWPI

Dec 22, 2005

DERWENT-ACC-NO: 2000-558303

DERWENT-WEEK: 200603

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TITLE: Modulating biosynthesis of organic sulfur compounds in plants (e.g. maize, wheat and soybean) by transforming the plant with a DNA construct encoding a (P)APS reductase enzyme

INVENTOR: LEUSTEK, T; TARCZYNSKI, M C

PRIORITY-DATA: 1999US-0252319 (February 18, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>DE 60024060 E</u>	December 22, 2005		000	C12N015/82
<u>WO 200049165 A1</u>	August 24, 2000	E	021	C12N015/82
<u>AU 200037027 A</u>	September 4, 2000		000	C12N015/82
<u>EP 1153135 A1</u>	November 14, 2001	E	000	C12N015/82
<u>US 6576819 B1</u>	June 10, 2003		000	A01H005/00
<u>EP 1153135 B1</u>	November 16, 2005	E	000	C12N015/82

INT-CL (IPC): A01 H 5/00; A01 H 5/10; C12 N 9/02; C12 N 15/52; C12 N 15/82

ABSTRACTED-PUB-NO: WO 200049165A

BASIC-ABSTRACT:

NOVELTY - A method (I) for modulating biosynthesis of at least 1 organic sulfur compound in plants, comprising stably transforming the plant with a DNA construct comprising a nucleic acid encoding a (P)APS reductase enzyme (the nucleic acid is operably linked to a promoter that drives expression in a plant and the level of at least 1 organic sulfur compound is altered), is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a plant (II) with increased levels of at least 1 organic sulfur compound, and which has been stably transformed with a DNA construct comprising a nucleic acid encoding a (P)APS reductase enzyme (the nucleic acid is operably linked to a promoter that drives expression in a plant);

(2) a seed (III) of (II);

(3) a plant cell (IV) with increased levels of at least 1 organic sulfur compound, and which has been stably transformed with a DNA construct comprising a nucleic acid encoding a (P)APS reductase enzyme (the nucleic acid is operably linked to a

promoter that drives expression in a plant); and

(4) a method (V) for decreasing the oxidative stress in a plant comprising stably transforming the plant with a DNA construct comprising a nucleic acid encoding a (P)APS reductase enzyme (the nucleic acid is operably linked to a promoter that drives expression in a plant).

USE - The method (I) is used for altering the biosynthesis of organic sulfur compounds (e.g. amino acid (cysteine or methionine) or glutathione) in plants such as maize, wheat, barley, rye, rice, millet, sorghum, soybean, sunflower, Brassica and/or alfalfa (claimed).

ADVANTAGE - Altering the biosynthesis of organic sulfur compounds alters the nutritional properties of the plants.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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☐ 25. Document ID: US 20040121440 A1, WO 200004161 A1, AU 9950990 A, EP 1097220 A1, US 6338966 B1, US 6730827 B1

L1: Entry 25 of 26

File: DWPI

Jun 24, 2004

DERWENT-ACC-NO: 2000-182427

DERWENT-WEEK: 200442

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TITLE: Nucleic acid fragments encoding sulfate assimilation proteins in plants and seeds useful as probes for isolating cDNAs and genes encoding homologous proteins, and in producing transgenic plants

INVENTOR: ALLEN, S M; FALCO, S C ; ANDERSON, S L ; RAFALSKI, J A

PRIORITY-DATA: 1998US-092833P (July 14, 1998), 1999US-0346408 (July 1, 1999), 2000US-0720318 (December 21, 2000), 2003US-0731525 (December 9, 2003)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>US 20040121440 A1</u>	June 24, 2004		000	C07H021/04
<u>WO 200004161 A1</u>	January 27, 2000	E	047	C12N015/53
<u>AU 9950990 A</u>	February 7, 2000		000	C12N015/53
<u>EP 1097220 A1</u>	May 9, 2001	E	000	C12N015/53
<u>US 6338966 B1</u>	January 15, 2002		000	C07H021/04
<u>US 6730827 B1</u>	May 4, 2004		000	A01H009/00

INT-CL (IPC): A01 H 9/00; C07 H 21/04; C07 K 14/705; C12 N 1/20; C12 N 5/10; C12 N 9/02; C12 N 9/10; C12 N 9/12; C12 N 15/00; C12 N 15/53; C12 N 15/74; C12 N 15/82; C12 Q 1/68; G01 N 33/50

ABSTRACTED-PUB-NO: US 6338966B

BASIC-ABSTRACT:

NOVELTY - Nucleic acid fragment (I) encoding adenosine-5'-phosphosulfate (APS) reductase encoding an amino acid with at least 80% identity to a 293 (Ia), 299 (Ib), 472 (Ic), 466 (Id) or 463 (Ie) amino acid sequence as given in the

specification, or its complement, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) a chimeric gene (II) comprising (I) operably linked to regulatory sequences;
- (2) a transformed host cell (III) comprising (II); and
- (3) an APS reductase polypeptide (IV) comprising all or a substantial portion of (Ia)-(Ie).

USE - (I) is useful as a probe for identifying nucleic acids encoding a sulfate assimilation protein (SAP) from cDNA or genomic libraries by isolating and sequencing the cDNA clone that hybridizes to (I). SAP-encoding nucleic acids can also be obtained by amplifying a cDNA insert in a cloning vector using primers representing the sequence of the vector and a sequence corresponding to (I). Chimeric genes comprising (I) are used to alter the level of expression of a SAP in transformed host cells (claimed). (I) is also useful for producing transgenic plants with altered levels of SAP. APS reductase polypeptides encoded by (I) are useful for producing antibodies which are useful for screening cDNA expression libraries to isolate full length cDNA clones encoding APS reductase.

ABSTRACTED-PUB-NO:

WO 200004161A EQUIVALENT-ABSTRACTS:

NOVELTY - Nucleic acid fragment (I) encoding adenosine-5'-phosphosulfate (APS reductase encoding an amino acid with at least 80% identity to a 293 (Ia), 299 (Ib), 472 (Ic), 466 (Id) or 463 (Ie) amino acid sequence as given in the specification, or its complement, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

- (1) a chimeric gene (II) comprising (I) operably linked to regulatory sequences;
- (2) a transformed host cell (III) comprising (II); and
- (3) an APS reductase polypeptide (IV) comprising all or a substantial portion of (Ia)-(Ie).

USE - (I) is useful as a probe for identifying nucleic acids encoding a sulfate assimilation protein (SAP) from cDNA or genomic libraries by isolating and sequencing the cDNA clone that hybridizes to (I). SAP-encoding nucleic acids can also be obtained by amplifying a cDNA insert in a cloning vector using primers representing the sequence of the vector and a sequence corresponding to (I). Chimeric genes comprising (I) are used to alter the level of expression of a SAP in transformed host cells (claimed). (I) is also useful for producing transgenic plants with altered levels of SAP. APS reductase polypeptides encoded by (I) are useful for producing antibodies which are useful for screening cDNA expression libraries to isolate full length cDNA clones encoding APS reductase.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWC	Draw. D.
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- ☐ 26. Document ID: EP 272916 A, AU 8781180 A, JP 63173964 A, NO 8705385 A, DK 8706796 A, CN 8708357 A, US 4999286 A, CA 1303985 C, EP 272916 B1, DE 3784471 G, NO 174779 B, KR 9405603 B1

L1: Entry 26 of 26

File: DWPI

Jun 29, 1988

DERWENT-ACC-NO: 1988-176992
DERWENT-WEEK: 199616
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TITLE: Detection of sulphate-reducing bacteria - e.g. in oil reservoirs, cooling towers and pipelines

INVENTOR: GAWEL, L J; NG, T ; ODOM, J M ; NG, T K

PRIORITY-DATA: 1986US-0946547 (December 23, 1986)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>EP 272916 A</u>	June 29, 1988	E	024	
<u>AU 8781180 A</u>	June 23, 1988		000	
<u>JP 63173964 A</u>	July 18, 1988		000	
<u>NO 8705385 A</u>	July 18, 1988		000	
<u>DK 8706796 A</u>	June 24, 1988		000	
<u>CN 8708357 A</u>	August 17, 1988		000	
<u>US 4999286 A</u>	March 12, 1991		000	
<u>CA 1303985 C</u>	June 23, 1992		000	G01N033/569
<u>EP 272916 B1</u>	March 3, 1993	E	028	C12Q001/04
<u>DE 3784471 G</u>	April 8, 1993		000	C12Q001/04
<u>NO 174779 B</u>	March 28, 1994		000	C12Q001/04
<u>KR 9405603 B1</u>	June 21, 1994		000	C12Q001/26

INT-CL (IPC): A01 N 25/00; A01 N 33/12; A01 N 35/02; C02 F 1/50; C12 M 1/34;
C12 Q 1/04; C12 Q 1/26; G01 N 33/56; G01 N 33/569; G01 N 33/573

ABSTRACTED-PUB-NO: EP 272916A

BASIC-ABSTRACT:

Method for detecting sulphate-reducing bacteria in an aq. environment comprises (a) preparing a lysate of a sample from the environment including microbes present so as to release into the lysate an enzyme which the sulphate-reducing bacteria utilise to derive energy by redn. of sulphate; (b) contacting a portion of the lysate with an antibody for the enzyme under reactive conditions for an antibody-enzyme reaction; and (c) detecting any presence of the reaction prod. of the enzyme and the antibody so as to determine the presence of sulphate-reducing bacteria.

A receptacle for processing test fluids contg. analytes is also provided. The receptacle comprises a container having an access port, and a capture reagent disposed in the container. The capture reagent comprises an antibody for adenosine 5'-phosphosulphate (APS) reductase derived by injecting purified APS reductase from sulphate-reducing bacteria into an organism having an immune system, and then recovering the antibody.

USE/ADVANTAGE - The method enables improved control of deleterious sulphate-reducing bacteria which produce corrosion and noxious sulphide ions or sourness in aq. environments, such as oil reservoirs, oil and gas wells, pipelines, vessels and cooling towers. The appts. provided enables rapid detection of the sulphate-reducing bacteria, and is very sensitive, allowing detection of very low levels of bacteria. Control measures can then be tailored to the presence and quantity of bacteria present. Thus wasteful and expensive treatments which may introduce deleterious materials into the environment can be avoided.

ABSTRACTED-PUB-NO:

EP 272916B EQUIVALENT-ABSTRACTS:

A method for detecting the presence of sulphate-reducing bacteria in a sample comprising: (a) preparing a lysate of said sample so as to release into said lysate adenosine 5'-phosphosulphate reductase (APS reductase) contained in said sulphate-reducing bacteria, (b) contacting at least a portion of the lysate with a first antibody specific for the APS reductase to form a first complex, and (c) detecting the first complex as an indication of the presence of sulphate-reducing bacteria.

US 4999286A

Controlling sulphate reducing bacteria in an aq. environment comprises collecting a sample, detecting the presence of the bacteria in the sample, and responsive to the presence of the bacteria and treating the environment with bactericidal or bacteriostatic agents to kill or inhibit the growth of sulphate reducing bacteria in the environment. Detection is effected by (a) preparing a lysate of the sample to release into the lysate adenosine 5'-phosphosulphate reductase (APS reductase) in the bacteria, (b) contacting at least a portion of the lysate with a 1st antibody specific for the APS reductase and (c) detecting the obtd. 1st complex as an indication of the presence of the bacteria. The 1st antibody is pref. linked to a solid phase support. (b) also comprises contacting the 1st complex with a conjugate comprising a 2nd antibody specific for APS reductase and a colour formation agent to form a 2nd complex comprising the 1st complex and conjugate. USE - Used for rapid control of deleterious sulphate reducing bacteria producing sulphide ions in oil reservoirs, oil and gas wells, pipelines, vessels and cooling towers.

(19pp)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw. D
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adenosine adj5 phosphosulfate reductase or APS reductase	26

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Search Results - Record(s) 1 through 9 of 9 returned.

☐ 1. Document ID: US 20050125856 A1

L4: Entry 1 of 9

File: PGPB

Jun 9, 2005

PGPUB-DOCUMENT-NUMBER: 20050125856

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050125856 A1

TITLE: Serine O-acetyltransferase

PUBLICATION-DATE: June 9, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Allen, Stephen M.	Wilmington	DE	US
Falco, Saverio C.	Arden	DE	US
Tarczyński, Mitchell C.	West Des Moines	IA	US

US-CL-CURRENT: [800/278](#); [435/193](#), [435/419](#), [435/468](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw D
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☐ 2. Document ID: US 20040177401 A1

L4: Entry 2 of 9

File: PGPB

Sep 9, 2004

PGPUB-DOCUMENT-NUMBER: 20040177401

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040177401 A1

TITLE: Genes encoding sulfate assimilation proteins

PUBLICATION-DATE: September 9, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Falco, Saverio Carl	Arden	DE	US
Allen, Stephen M.	Wilmington	DE	US
Anderson, Shawn L.	West Grove	PA	US

US-CL-CURRENT: [800/278](#); [435/194](#), [435/320.1](#), [435/419](#), [435/6](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 3. Document ID: US 20040139492 A1

L4: Entry 3 of 9

File: PGPB

Jul 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040139492

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040139492 A1

TITLE: Genes encoding sulfate assimilation proteins

PUBLICATION-DATE: July 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Allen, Stephen M.	Wilmington	DE	US
Falco, Saverio Carl	Arden	DE	US
Thorpe, Catherine J.	Arden	DE	US

US-CL-CURRENT: 800/278; 435/196, 435/320.1, 435/419, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 4. Document ID: US 20040137496 A1

L4: Entry 4 of 9

File: PGPB

Jul 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040137496

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040137496 A1

TITLE: Genes encoding sulfate assimilation proteins

PUBLICATION-DATE: July 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Falco, Saverio Carl	Arden	DE	US
Allen, Stephen M.	Wilmington	DE	US

US-CL-CURRENT: 435/6; 435/189, 435/320.1, 435/325, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 5. Document ID: US 20040121440 A1

L4: Entry 5 of 9

File: PGPB

Jun 24, 2004

PGPUB-DOCUMENT-NUMBER: 20040121440
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040121440 A1

TITLE: Genes encoding sulfate assimilation proteins

PUBLICATION-DATE: June 24, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Falco, Saverio Carl	Arden	DE	US
Allen, Stephen M.	Wilmington	DE	US

US-CL-CURRENT: [435/193](#); [435/320.1](#), [435/325](#), [435/69.1](#), [530/350](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. D.
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☐ 6. Document ID: US 20040078852 A1

L4: Entry 6 of 9

File: PGPB

Apr 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040078852
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040078852 A1

TITLE: Transcription factors to improve plant stress tolerance

PUBLICATION-DATE: April 22, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Thomashow, Michael F.	East Lansing	MI	US
Fowler, Sarah George	Ann Arbor	MI	US
Vogel, Jonathan	Holt	MI	US
Zarka, Daniel	Lansing	MI	US

US-CL-CURRENT: [800/289](#); [435/199](#), [435/419](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. D.
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☐ 7. Document ID: US 20030228661 A1

L4: Entry 7 of 9

File: PGPB

Dec 11, 2003

PGPUB-DOCUMENT-NUMBER: 20030228661
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030228661 A1

TITLE: Genes encoding sulfate assimilation proteins

PUBLICATION-DATE: December 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Allen, Stephen M.	Wilmington	DE	US
Maxwell, Carl A.	Elkton	MD	US
Falco, Saverio Carl	Arden	DE	US

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 530/350, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 8. Document ID: US 20030115639 A1

L4: Entry 8 of 9

File: PGPB

Jun 19, 2003

PGPUB-DOCUMENT-NUMBER: 20030115639

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030115639 A1

TITLE: Expressed sequences of arabidopsis thaliana

PUBLICATION-DATE: June 19, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Gorlach, Jorn	Durham	NC	US
An, Yong-Qiang	San Diego	CA	US
Hamilton, Carol M.	Apex	NC	US
Price, Jennifer L.	Raleigh	NC	US
Raines, Tracy M.	Durham	NC	US
Yu, Yang	Matinsville	NJ	US
Rameaka, Joshua G.	Durham	NC	US
Page, Amy	Durham	NC	US
Mathew, Abraham V.	Cary	NC	US
Ledford, Brooke L.	Holly Springs	NC	US
Woessner, Jeffrey P.	Hillsborough	NC	US
Haas, William David	Durham	NC	US
Garcia, Carlos A.	Carrboro	NC	US
Kricker, Maja	Pittsboro	NC	US
Slater, Ted	Apex	NC	US
Davis, Keith R.	Durham	NC	US
Allen, Keith	Cary	NC	US
Hoffman, Neil	Chapel Hill	NC	US
Hurban, Patrick	Raleigh	NC	US

US-CL-CURRENT: 800/288; 435/4, 536/23.2, 536/23.6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. D.
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☐ 9. Document ID: US 20030008368 A1

L4: Entry 9 of 9

File: PGPB

Jan 9, 2003

PGPUB-DOCUMENT-NUMBER: 20030008368

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030008368 A1

TITLE: Serine O-acetyltransferase

PUBLICATION-DATE: January 9, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Allen, Stephen M.	Wilmington	DE	US
Falco, Saverio C.	Arden	DE	US
Tarczyński, Mitchell	West Des Moines	IA	US

US-CL-CURRENT: [435/193](#); [435/320.1](#), [435/325](#), [435/455](#), [435/69.1](#), [536/23.2](#)

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KVMC	Draw. De
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